REMARKS

This Amendment responds to the Office Action dated July 15, 2004 in which the Examiner rejected Claims 1-11 under 35 U.S.C. §103 and stated that Claims 12-22 are allowed.

As indicated above, a typographical error in the specification has been amended. Applicants respectfully request the Examiner approves the correction.

Claims 1 claims an image processor, Claim 6 claims a method of image processing and Claim 9 claims a recording medium storing a program. The processor, method and program include a) binarizing input image data to provide bi-level image data, b) counting pixels having a predetermined value in a block of a polygon having n vertices in the bi-level image data, wherein n denotes a natural number equal to or larger than eight and c) deciding, based on a number of the pixels having the predetermined value, whether the circular pattern is detected in the image or not.

Through the structure and method of the claimed invention counting pixels having a predetermined value in a block in a polygon having eight or more vertices in a bi-level image data, as claimed in Claims 1, 6 and 9, the claimed invention provides an image processor, method and recording medium which can detect a specific pattern at a high speed and at high precision. The prior art does not show, teach or suggest the invention as claimed in Claims 1, 6 and 9.

Claims 1-11 were rejected under 35 U.S.C. §103 as being unpatentable over *Tsuji et al.* (U.S. Patent No. 5,796,869) in view of *Sakai et al.* (U.S. Patent No. 5,784,180).

Applicants respectfully traverse the Examiner's rejection of the claims under 35 U.S.C. §103. The claims have been reviewed in light of the Office Action, and for reasons which will be set forth below, Applicants respectfully request the Examiner withdraws the rejections to the claims and allows the claims to issue.

Tsuji et al. appears to disclose a system for recognizing a circular image of a specific color, and the recognizing system includes specific color detecting means for detecting a specific color on an image on an original document (col. 2, lines 37-40). As shown in Fig. 5, a sensor detects a distribution of densities on the diameter of the concentric circles detected by the concentric circle image detecting unit, in the form of ONs and OFFs. The detected density data is compared with the stored data. ON time duration, the number of ONs, ON/OFF pitches or the like may be used for expressing the density data by the sensor. A pattern (pitch and distance) of the chord on the diameter of the concentric circles or a line at a predetermined distance from the center of the circle, and the distances among the intersections of the concentric circles on the chord are stored. When they are coincident with a pattern corresponding to the concentric circles previously stored, it is determined that the detected circular image is the specific concentric circles (col. 5, lines 8-21). Image information on a color original document that is read by a CCD line sensor is converted into digital image signals B, G and R of multitone. The converted image signals are supplied to an image processing system. The image processing system is contained in the circuit board containing section 33. In the image processing system, the received image signals of B, G and R are subjected to various types of processings for improving color, tone, definition, and other image quality and reproduction. These processings are various conversion processings, editorial

processings, and others. The color image signals thus processed are converted into image signals of toner colors Y (yellow) M (magenta), C (cyan), K (black or real black). The toner signals of the process colors are converted into on/off or binarized toner color signals. Then, those toner color signals are output to the image output terminal 34 (col. 6, lines 43-59). When the circular-image detecting circuit 70 and the horizontal pitch signal detecting circuit 71-2 detect pixels, the pixels detected by them are determined to be the pixels at both ends of the diameter of the circle. A circle-center calculating circuit 71-6 calculates the center x_0 (FIG. 8) of the circle. An oblique or vertical pitch signal detecting circuit 71-3 checks as to whether or not the buffer memory 72 stores the circle pixel data corresponding to the positions of the d_0 mm pitch at the circumference when it is turned by a present angle from the fast scan direction, for example, by 45° from the slow scan direction or the fast scan direction. When the circle pixel data is detected also by the oblique pitch signal detecting circuit 71-3, a counter 71-4 counts the number of pixels within the circle. A comparator 71-5 determines whether or not the count value of the counter is equal to the number of pixels previously stored by comparing them. When the number of pixels is within the upper and lower threshold values (th_1 and th_2), the comparator 71-5 determines or recognizes that the detected circle is the set concentric circle. A signal representing the result of this determination is output from a recognition result output circuit 73 (col. 13, lines 19-40).

Thus, *Tsuji et al.* merely discloses detecting concentric circles with a concentric-circle recognizing circuit 71. Nothing in *Tsuji et al.* shows, teaches or suggests counting pixels in a block of a polygon having eight or more vertices in a bi-

level image data as claimed in Claims 1, 6 and 9. Rather, *Tsuji et al.* merely discloses detecting concentric circles.

Additionally, *Tsuji et al.* discloses a counter 71-4 which counts the number of pixels within a circle. Nothing *Tsuji et al.* shows, teaches or suggests counting pixels in a block of a polygon (i.e., one portion of a polygon) as claimed in Claims 1, 6 and 9. Rather, *Tsuji et al.* merely discloses counting the number of pixels within the entire circle.

Sakai et al. appears to disclose the printer 2 shown in FIG. 1 includes a scanner 711 which serves as a laser output unit for converting an image signal from the color reader 1 into an optical signal, a polygomal mirror 712 having a polygomal shape (octagon), a motor (not shown) for rotating the polygomal mirror 712, and an f/0 lens (focusing lens) 713. The printer 2 also includes a reflecting mirror 712 for changing an optical path of a laser beam from the scanner 711 as indicated by the alternate long and short dashed line in FIG. 1, and a photosensitive drum 715 (col. 19, lines 40-49).

Thus, *Sakai et al.* merely discloses a polygomal mirror 712 having a polygomal shape (octagon). Nothing in *Sakai et al.* shows, teaches or suggests counting pixels in a block of a polygon in bi-level image data as claimed in Claims 1, 6 and 9. Rather, *Sakai et al.* merely discloses using a polygomal shaped mirror for scanning a laser beam.

In combination of *Tsuji et al.* and *Sakai et al.* would merely suggest that when the image is scanned to use the polygomal mirror of *Sakai et al.* and then to detect circular patterns within the image as taught by *Tsuji et al.* There is nothing in the combination of *Tsuji et al.* and *Sakai et al.* that shows, teaches or suggests counting

pixels of bi-level image data in a block (portion) of a polygon having a eight or more vertices as claimed in Claims 1, 6 and 9. Therefore, Applicants respectfully request the Examiner withdraws the rejections to Claims 1, 6 and 9 under 35 U.S.C. §103.

Claims 2-5, 7-8 and 10-11 depend from Claims 1, 6 and 9 and recite additional features. Applicants respectfully submit that Claims 2-5, 7-8 and 10-11 would not have been obvious within the meaning of 35 U.S.C. §103 over *Tsuji et al.* and *Sakai et al.* at least for the reasons as set forth above. Applicants respectfully request the Examiner withdraws the rejection to Claims 2-5, 7-8 and 10-11 under 35 U.S.C. § 103.

The prior art of record, which is not relied upon, is acknowledged. The references taken singularly or in combination do not anticipate or make obvious the claimed invention.

Thus, it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is requested to contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

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